*A Concrete Approach to Mathematical Modelling*. By Michael Mesterton-Gibbons. John Wiley & Sons, New York. (1995). 597 pages. $64.95.

Contents:

An ABC of modelling. I. The deterministic view. 1. Growth and decay. Dynamical systems. 2. Equilibrium. 3. Optimal control and utility. II. Validating a model. 4. Validation: Accept, improve, or reject. III. The probabilistic view. 5. Birth and death. Probabilistic dynamics. 6. Stationary distributions. 7. Optimal decision and reward. IV. The art of application. 8. Using a model: Choice and estimation. 9. Building a model: Adapting, extending, and combining. V. Toward more advanced models. 10. Further dynamical systems. 11. Further flow and diffusion. 12. Further optimization. Epilogue. Appendix 1. A review of probability and statistics. Appendix 2. Models, sources, and further reading arranged by discipline. Solutions to selected exercises. References. Index.

*Lie Algebras and Locally Compact Groups (Chicago Lectures in Mathematics)*. By Irving Kaplansky. University of Chicago Press, Chicago. (1971). 148 pages. $22.00.

Contents:

Preface. I. Lie algebras. 1. Definitions and examples. 2. Solvable and nilpotent algebras. 3. Semi-simple algebras. 4. Cartan subalgebras. 5. Transition to a geometric problem (characteristic 0). 6. The geometric classification. 7. Transition to a geometric problem (characteristic p). 8. Transition to a geometric problem (characteristic p), continued. II. The structure of locally compact groups. 1. NSS groups. 2. Existence of one-parameter subgroups. 3. Differentiable functions. 4. Functions constructed from a single Q. 5. Functions constructed from a sequence of Q's. 6. Proof that $i/n_i$ is bounded. 7. Existence of proper differentiable functions. 8. The vector space of one-parameter subgroups. 9. Proof that $K$ is a neighborhood of $i$. 10. Approximation by NSS groups. 11. Further developments. Bibliography. Index.

*Stable Homotopy and Generalised Homology (Chicago Lectures in Mathematics)*. J. F. Adams. University of Chicago Press, Chicago (1974). 373 pages. $30.00.

Contents:

Preface. I.S.P. Novikov's work on operations on complex cobordism. 1. Introduction. 2. Cobordism groups. 3. Homology. 4. The Conner-Floyd Chern classes. 5. The Novikov operations. 6. The algebra of all operations. 7. Scholium on Novikov's exposition. 8. Complex manifolds. II. Quillen's work on formal groups and complex cobordism. 0. Introduction. 1. Formal groups. 2. Examples from algebraic topology. 3. Reformulation. 4. Calculations in E-homology and cohomology. 5. Lazard's universal ring. 6. More calculations in E-homology. 7. The structure of Lazard's universal ring L. 8. Quillen's theorem. 9. Corollaries. 10. Various formulae in $\pi_*(\mathrm{MU})$. 11. $\mathrm{MU}_*(\mathrm{MU})$. 12. Behaviour of the Bott map. 13. $K_*(K)$. 14. The Hattori-Strong theorem. 15. Quillen's idempotent cohomology operations. 16. The Brown-Peterson spectrum. 17. $KO_*(KO)$. References. III. Stable homotopy and generalised homology. 1. Introduction. 2. Spectra. 3. Elementary properties of the category of CW-spectra. 4. Smash products. 5. Spanier-Whitehead duality. 6. Homology and cohomology. 7. The Atiyah-Hirzebruch spectral sequence. 8. The inverse limit and its derived functors. 9. Products. 10. Duality in manifolds. 11. Applications in $K$-theory. 12. The Steenrod algebra and its dual. 13. A universal coefficient theorem. 14. A category of fractions. 15. The Adams spectral sequence. 16. Applications to $\pi_*(bu \wedge X)$; modules over $K[x, y]$. 17. Structure of $\pi_*(bu \wedge bu)$. References.

*Computer Visualization*. Edited by Richard S. Gallagher. CRC Press, Boca Raton. (1995). 312 pages. $69.95.

Contents:

Preface. Acknowledgments. I. Introduction. 1. Scientific visualization: An engineering perspective (Richard S. Gallagher). 2. An overview of computer graphics for visualization (Alain Fournier and John Buchanan). II. Scientific visualization techniques. 3. Analysis data for visualization (Mark S. Shephard and William J. Schroeder). 4. Scalar visualization techniques (Richard S. Gallagher). 5. A unified framework for flow visualization (Thierry Delmarcelle and Lambertus Hesselink). 6. Continuum volume display (Arie E. Kaufman and Lisa M. Sobierajski). 7. Animation and the examination of behavior over time (Eric Pepke). III. Applications issues and future trends. 8. Systems aspects of visualization applications. (David Parker). 9. Applications of engineering visualization to analysis and design (Larry G. Richards). 10. Future trends in scientific visualization (Richard S. Gallagher). Contributor profiles. Index.

*Atoms in the Family: My Life with Enrico Fermi*. By Laura Fermi. The University of Chicago Press, Chicago. (1954). 267 pages. $13.95.

Contents:

List of illustrations. Part I. Italy. 1. First encounters. 2. The times before we met. 3. The times before we met—continued. 4. Birth of a school. 5. Bébé Peugeot. 6. Early married years. 7. Mr. North and the academies. 8. A summer in Ann Arbor. 9. Work. 10. South American interlude. 11. An accidental discovery. 12. How not to raise children. 13. November 10, 1938. 14. Departure. Part II. America. 15. The process of Americanization. 16. Some shapes of things to come. 17. An enemy alien works for Uncle Sam. 18. Of secrecy and the pile. 19. Success. 20. Site Y. 21. A bodyguard and a few friends. 22. Life on the mesa. 23. The War ends. 24. Exit Pontecorvo. 25. A new toy: The giant cyclotron. Acknowledgments.